Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (currently amended) A multi-tone X-DSL communication device with a plurality of shared and discrete components forming a transmit path and a receive path configured to couple to a communication medium to communicate multi-tone modulated communication channels, and the multi-tone X-DSL communication device comprising:

~~a Fourier transform engine for transforming transmitted and received communication channels between the time domain and the frequency domain using a common set of tones spanning a shared frequency range for the transmitted and received communication channels;~~

~~an~~ Walsh encoder on the transmit path ~~coupled to a Fourier transform engine~~ and the Walsh encoder configured to ~~generate data redundancy on the transmit path by replicating data in the transmitted communication channel and encoding the replicated data~~ encode with a first Walsh ~~code sequence~~ codeword successive symbols of a transmitted communication channel signal; ~~and~~

an inverse Fourier transform component on the transmit path coupled to the Walsh encoder to transform encoded symbols of the transmitted communication channel signal from the frequency domain to the time domain for transmission over the communication medium to an opposing communication device on a common set of tones;

a Fourier transform component on the receive path, and the Fourier transform component configured to receive from the opposing communication device on the common set of tones a communication channel signal encoded by the opposing communication device with a second Walsh codeword orthogonal to the first Walsh codeword and to transform the received communication channel signal from the time domain to the frequency domain; and

a Walsh decoder on the receive path, and the Walsh decoder coupled to the Fourier transform ~~engine on the receive path~~ and configured to decode ~~a~~ with the second Walsh

codeword the received communication channel signal transformed by the Fourier transform component ~~exhibiting data redundancy with a second code sequence orthogonal to the first code sequence.~~ , whereby the common set of tones of the transmitted and received communication channel signals span a shared frequency range on the communication medium.

Claim 2 (canceled)

Claim 3 (currently amended) The multi-tone X-DSL communication device of Claim 1, ~~wherein the encoder and decoder~~ further ~~comprises respectively:~~ comprising:

~~a~~ the Walsh encoder further configured to encode successive pairs of symbols with the first Walsh codeword thereby ~~generate~~ generating data redundancy on the transmit path in the time domain~~, by duplicating each successive tone set, and the encoder further configured to encode duplicated tone sets utilizing as the first code sequence a first Walsh code~~ between each successive pair of encoded symbols of the transmitted communication channel signal ; and

~~a~~ the Walsh decoder further configured ~~for decoding~~ to decode successive pairs of encoded symbols of the received communication channel signal with the second Walsh codeword ~~exhibiting a~~ thereby removing data redundancy in the time domain ~~with the second code sequence corresponding with a second Walsh code orthogonal to the first Walsh code~~ from the received communication channel signal .

Claim 4 (currently amended) The multi-tone X-DSL communication device of Claim 1, ~~wherein the~~ further ~~comprises~~ comprising:

~~a~~ the Walsh encoder further configured to encode each symbol with the first Walsh codeword thereby ~~generate~~ generating data redundancy on the transmit path in the ~~the~~ frequency domain, ~~by duplicating~~ between tones within each ~~tone set~~ encoded symbol~~, and~~

~~the encoder further configured to encode the replicated tones within each tone set utilizing as the first code sequence a first Walsh code~~; and

~~a~~ the Walsh decoder further configured ~~for decoding~~ to decode each encoded symbol of the received communication channel signal thereby removing ~~exhibiting a~~ data redundancy in the frequency domain ~~with the second code sequence corresponding with a second Walsh code orthogonal to the first Walsh code~~ from the received communication channel signal.

Claims 5-9 (canceled)

Claim 10 (currently amended) A method for communicating multi-tone modulated upstream and downstream communication channels between ~~a~~ first and second ~~modem~~ multi-tone X-DSL communication devices coupled to one another via a communication medium, and the method for communicating comprising the steps of:

- establishing a first Walsh codeword and a second ~~code sequence~~ Walsh codeword orthogonal to one another for encoding upstream and downstream communication channels signals ~~respectively~~ between the first and second multi-tone X-DSL communication devices;
- ~~replicating data associated with the upstream communication channel on a transmit path of the first modem and associated with the downstream communication channel on a transmit path of the second modem;~~
- encoding transmissions ~~data replicated in the replicating step~~ of the upstream communication channel signal with the first Walsh codeword ~~sequence on the transmit path of the first modem~~ and encoding transmissions of the downstream communication channel signal with the second Walsh codeword ~~sequence on the transmit path of the second modem~~ established in the establishing step;

- transforming ~~modulating the data encoded in~~ the upstream and downstream communication channel signals between ~~the encoding step~~ a frequency domain and a time domain using a common set of tones spanning a shared frequency range on the communication medium ~~for both the upstream and downstream communication channels~~; and

- decoding reception ~~the data modulated in the modulating step on a receive path of the second modem using~~ of the upstream communication channel signal with the first Walsh codeword ~~sequence~~ and decoding reception of the downstream communication channel signal ~~on a receive path of the first modem using~~ with the second Walsh codeword ~~sequence~~.

Claim 11 (canceled)

Claim 12 (currently amended) The method of Claim 10, wherein the ~~replicating~~ encoding and decoding steps further comprises :

encoding ~~duplicating each~~ successive ~~tone set~~ pairs of symbols transmitted ~~of~~ on the upstream and downstream communication channels signals ~~on the transmit paths of the first modem and second modem respectively.~~ , thereby generating data redundancy in the time domain between each successive pair of encoded symbols; and

decoding successive pairs of encoded symbols received on the upstream and downstream communication channel signals, thereby removing the data redundancy in the time domain.

Claim 13 (currently amended) The method of Claim 10, wherein the ~~replicating~~ encoding and decoding steps further comprises :

encoding duplicating tones within each tone set each symbol transmitted of on the upstream and downstream communication channels signals on the transmit paths of the first modem and second modem respectively. thereby generating data redundancy in the frequency domain between tones in each encoded symbols; and

decoding each encoded symbol received on the upstream and downstream communication channel signals, thereby removing the data redundancy in the frequency domain.

Claim 14 (canceled)